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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/508,793	05/03/2005	Akira Ohba	046124-5322	3905
55694	7590	06/13/2006	EXAMINER	
DRINKER BIDDLE & REATH (DC)			HO, ALLEN C	
1500 K STREET, N.W.			ART UNIT	
SUITE 1100			PAPER NUMBER	
WASHINGTON, DC 20005-1209			2882	

DATE MAILED: 06/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary

Application No.

10/508,793

Applicant(s)

OHBA ET AL.

Examiner

Allen C. Ho

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 September 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 03052005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: **22** and **23**. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the x-ray irradiation means, the first x-ray reflection means, the second x-ray reflection means, and the x-ray detecting means must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure

Art Unit: 2882

must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Art Unit: 2882

4. The abstract of the disclosure is objected to because of the terms "x-ray image detecting means" and "focusing magnification adjusting means". Correction is required. See MPEP § 608.01(b).

Appropriate correction is required.

5. The disclosure is objected to because of the following informalities:

- (1) Page 12, line 19, "X-ray detector 6" should be replaced by --sample 4--.
- (2) Page 13, line 6, "X-ray detector 6" should be replaced by --sample 4--.

Appropriate correction is required.

Claim Objections

6. Claim 1 is objected to because of the following informalities:

Line 4, "an" before "grazing" should be replaced by --a--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites "an x-ray irradiation means", "a first x-ray reflection means", "a second x-ray reflection means", and "an x-ray detecting means". It is unclear whether or not they are the same or in addition to the elements recited in claim 1.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai *et al.* (U. S. Patent No. 5,434,901) in view of Thieme *et al.* (U. S. Patent No. 5,222,113).

With regard to claims 1 and 3, Nagai *et al.* disclosed an x-ray image magnifying device comprising: an illumination optical system (81) for irradiating the x-rays emitted from an x-ray source to a sample; an objective lens (83) configured by a grazing incident mirror (a Wolter optical system) composed of a rotary hyperboloidal surface and a rotary ellipsoidal surface for magnifying and focusing the x-ray having penetrated through the sample onto a predetermined position (column 13, line 66 - column 14, line 2); and an x-ray image detecting means (85) for detecting the x-ray image focused by the objective lens.

However, Nagai *et al.* failed to disclose a focusing magnification adjusting means for adjusting the focusing magnification of the x-ray image by moving at least one of the x-ray image detecting means, the sample, and the illumination optical system along the optical axis direction.

Thieme *et al.* disclosed a focusing magnification adjusting means (8) for adjusting the focusing magnification of the x-ray image by moving an x-ray image detecting means (6) along the optical axis direction (column 3, lines 57-60).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a focusing magnification adjusting means for adjusting the focusing magnification of the x-ray image by moving at least one of the x-ray image detecting means, the sample, and the illumination optical system along the optical axis direction, since a person would be motivated to adjust the focus magnification to bring a feature in the sample into focus.

With regard to claim 2, Nagai *et al.* and Thieme *et al.* disclosed the x-ray image magnifying device according to claim 1, further comprising: a light irradiation means (Nagai *et al.* 31) for irradiating the sample with a visible light or an ultraviolet light; and a light detecting means (Nagai *et al.* 35) for detecting an image by a light which has penetrated through the sample had has been reflected by the objective lens.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- (1) Levine *et al.* (U. S. Patent No. 6,389,101 B1) disclosed a parallel x-ray nanotomography that comprises a Wolter optic (60).
- (2) Barbee, Jr. *et al.* (U. S. Patent No. 6,278,764 B1) disclosed a Wolter microscope (Fig. 12).

Art Unit: 2882

- (3) Cash, Jr. (U. S. Patent No. 5,604,782) disclosed a spherical mirror grazing incidence x-ray optics.
- (4) Iketaki (U. S. Patent No. 5,450,463) disclosed an x-ray microscope that comprises Wolter optics.
- (5) Mochimaru *et al.* (U. S. Patent No. 5,241,426) disclosed a condenser optical system.
- (6) Ninomiya *et al.* (U. S. Patent No. 5,138,158) disclosed a surface analysis method and apparatus that comprises Wolter optics (11).
- (7) Kato (U. S. Patent No. 5,132,994) disclosed an x-ray microscope that comprises Wolter optics (1, 2).
- (8) Sumiya *et al.* (U. S. Patent No. 4,969,725) disclosed a method and apparatus for finishing an x-ray mirror.
- (9) Ueda *et al.* (U. S. Patent No. 4,940,319) disclosed a Wolter mirror.
- (10) Hoover (U. S. Patent No. 3,821,556) disclosed an x-ray telescope.
- (11) Wolter (U. S. Patent No. 2,759,106) disclosed an image forming mirror system.
- (12) Bridou *et al.*, J. Optics 15 (4), 270-280 (1984).
- (13) Boyle *et al.*, Rev. Sci. Instrum. 49(6), 746 (1978).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

Art Unit: 2882

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Allen C. Ho, Ph.D.
Primary Examiner
Art Unit 2882

08 June 2006